

rejected under 35 U.S.C. §103(a) over Kitajima in view of Hardy and further in view Hirohara (U.S. Patent Application Publication No. 2003/0011757). The rejections are respectfully traversed.

None of the above-applied references teach nor would have rendered obvious "wherein the radiation source and the detector are arranged so that a wavefront of the radiation is focused indirectly or directly, in reflection and/or transmission, onto the detector by at least a part of the medium; wherein the detector has a wavefront sensor or the detector is a wavefront sensor," as recited in independent claim 1; and "focusing of the wavefront of the radiation onto the detector; recording of the signals of the detector; and evaluating of the signals in determining of the inclination of the device; wherein during the evaluating of the signals, information about the wavefront is derived," as recited in independent claim 13 (emphasis added).

The Office Action asserts that the quadrant light-receiving element 40 of Kitajima corresponds to the claimed wavefront sensor of independent claims 1 and 13 (see Office Action, page 2). However, one of ordinary skill would not equate a quadrant sensor (i.e. the quadrant light-receiving element 40 of Kitajima) as reasonably corresponding to the claimed wavefront sensor of independent claims 1 and 13. For example, as illustrated in Fig. 6 of Kitajima, a quadrant sensor only includes four detecting points, a far too small a number to sufficiently resolve a wavefront. Rather, quadrant sensors merely determine the center of gravity in two dimensions by comparing the signals of two sensor elements with the signals of two opposite sensor elements. Further, in quadrant sensors, a light spot is merely statistically analyzed based on intensity variations to average such variations over the spot to determine the center of gravity of the spot. If the spot shows a structure, the center of gravity would not only be position-dependent (as desired in Kitajima) but would also include

contributions relating to the internal structure of the spot (see column 2, lines 24-30; column 9, lines 50-55; and column 13, lines 66-column 14, line 38 of Kitajima).

The above portions of Kitajima illustrate that the light-receiving element 40 has nothing to do with a determination or resolution of the wavefront. The optical system disclosed in Kitajima is designed merely for generating a uniform spot without any internal structure and statistically analyzing the intensity of the spot to determine a center of gravity. Therefore, Kitajima does not teach or render obvious the wavefront sensor of independent claims 1 and 13.

Hardy does not remedy the above-described deficiencies of Kitajima. As disclosed at column 1, lines 22-26 of Hardy, the sensor of Hardy is merely used as a diagnostic tool for high performance optical systems. The sensor of Hardy merely includes a surface acoustic wave reflective defraction grating that generates surface acoustic waves at two primary frequencies ( $f_1$  and  $f_2$ ) and produces a first AC shearing interferogram generated by the surface acoustic waves ( $f_1$  and  $f_2$ ). Further, a photodetector array is positioned to detect the shearing interferogram at a two dimensional array of zones (see column 2, lines 12-24 of Hardy).

The Office Action asserts that one of ordinary skill would have been motivated to combine Kitajima with the wavefront sensor including the surface acoustic reflective diffraction grading, as disclosed by Hardy. The Office Action further asserts that the motivation for such a combination would have been "because this allows for a more simple approach to determine slope of the wavefront to in turn determine inclination and is a simple substitution of one known element for another to yield predictable results" (emphasis added) (see Office Action, pages 2 and 3). However, as disclosed in column 1, lines 22-26 and column 2, lines 12-24 of Hardy, and as discussed above, the system disclosed in Hardy is quite complex, and does not relate to inclinometers. Therefore, contrary to the Office Action

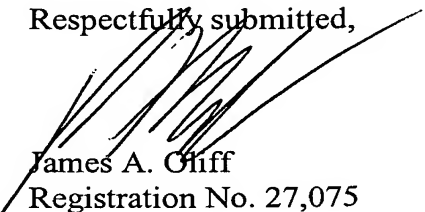
assertions, one of ordinary skill would not have been motivated to combine the disclosures of Kitajima and Hardy, because of the complex system disclosed in Hardy, and also because Hardy is nonanalogous art to Kitajima. Therefore, Hardy also does not teach nor would have rendered obvious the wavefront sensor of independent claims 1 and 13.

Yertoprakhov, Neal, Kaplan, Shirai and Hirohara also do not remedy the above-described deficiencies of Kitajima and Hardy. Further, claims 4, 8, 9, 11, 12, 17, 19-21, 23, 25, 26-28, 31, 33 and 35 variously depend from independent claims 1 and 13. Therefore, the above claims are patentable for at least their dependency on independent claims 1 and 13, as well for the additional features they recite. Applicants thus respectfully request withdraw of the rejections.

In view of the forgoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place the application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

  
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